sible to avoid such defects entirely, but it is interesting to note that no beaker has proved defective after very long and severe use.

The place subjected to greatest danger of puncture and that which allows greatest leakage is where the exposed surfaces of the solution inside and out come in contact with the surface of the beakers. This defect can be reduced considerably by filling the beakers with the salt solution to a slightly different level from that of their containers. Care should be taken not to wet the portion of the beaker that is not immersed. To eliminate sparking quite completely, however, the surfaces of the solution inside the beakers and that surrounding the beakers were covered with a layer of oil 5 cm. deep. For this purpose a 300-degree mineral seal oil was used. This oil, as Mr. C. E. Skinner kindly informed us, has very good dialectric properties—as good as can be expected from an oil not free from water. Whether this layer of oil eliminated sparking at the sacrifice of some capacity we have not determined.

The capacity of these condensers was estimated by the method of divided discharge and by the method of mixtures. The capacity of each of the five jars containing four beakers each was: .0088 M.F., .0091 M.F., .0093 M.F., .010 M.F., .0088 M.F. respectively. The mean of these capacities is .0092 M.F. A similar estimation of the capacity of two such beakers covered with tinfoil indicated that their combined capacity was very appreciably less than two beakers of the wet condenser. This is probably due to the unevenness of the surface and the difficulty of making contact between the glass and the tinfoil.

A comparison was made between the wet condenser as above described in which beakers of Jena glass and of "Pyrex" glass were used. The dimensions of these beakers were approximately the same. Assuming that the average thickness of the "Pyrex" beaker is equal to that of the Jena and assuming the dielectric constant of Jena glass to be 6.5, that of "Pyrex" glass must be about 4.3.

A comparison was also made as to the influence of the character of the conducting medium. Beaker condensers were set up using mercury, concentrated salt solution and distilled water (iron still), respectively. The capacities of the latter two were equal within the limits of error of measurements, while the capacity when using mercury was 10 per cent. higher than when using the salt solution. The slight superiority of mercury at low constant potential seems to be very greatly enhanced at the high and discontinuous potentials employed to produce the spark, where, judging by the fatness of the spark, the capacity of the condenser with mercury is three or four times as great as that of the condenser with salt solution.

This wet condenser has given perfect satisfaction under severe use for many months. Its cost is approximately the same as the glass plate condenser and considerably less than similar condensers covered with tinfoil.

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BOSTON MEETING OF THE AMERICAN CHEMICAL SOCIETY. VI

DIVISION OF INDUSTRIAL CHEMISTS AND CHEMICAL ENGINEERS

H. E. Howe, *Chairman.*

S. H. Salisbury, Jr., *Secretary.*

Conference on "The Industrial Chemist in War Time"

The cracking of solvent naphtha in the presence of Blau gas: GUSTAV EGLOFF. Solvent naphtha derived from the thermal decomposition of coal was passed through a carburetted water gas set in the presence of Blau gas at a temperature of 850° C. to produce toluene. The solvent naphtha used gave a distillation range of 93 per cent. between 130° C. and 165° C. First drop at 128° C. and dry at 183° C. Distillation determined by means of a 100 c.c. Standard Engler flask. The percentage yield of toluene in the recovered oil was nineteen, and upon the basis of solvent naphtha used eleven and one half per cent.

The effect of pressure upon the formation of benzene and toluene from gas oil: GUSTAV EGLOFF. Gas oil derived from a Pennsylvania crude petroleum was subjected to pressures of one, eleven and eighteen atmospheres at constant temperature of 700° C. to form benzene and toluene. The following table tabulates the analytical data:

700 deg. C.

Atmospheres Pressure	One	Eleven	Eighteen
Specific gravity recovered oil	0.891	0.970	0.998
Per cent. of recovered oil	13.3	25.0	18.0
Per cent. benzene in recovered oil	11.3	22.3	22.4
Per cent. of toluene in recovered oil	7.5	15.1	12.9
Per cent. of benzene on basis oil used for production	1.5	5.6	4.1
Per cent. of toluene on basis of oil used for production	1.0	3.8	2.3

An experiment in scrubbing carburetted water gas from recovering aromatics: ROBERT J. MOORE and GUSTAV EGLOFF. The following tables cover the percentages of benzene, toluene and xylene obtained by scrubbing one thousand cubic feet of carburetted water gas, using a paraffin "straw" oil as absorbent medium.

PERCENTAGES OF BENZENE, TOLUENE, XYLENE AND UNSATURATEDS IN LIGHT OIL OBTAINED

Cut Deg. C.	Per Cent. by Vol.	Spec. Grav.	Per Cent. Unsat.
Benzene (to 95)	51.8	0.866	46.0
Toluene (95 to 120)	24.1	0.869	18.0
Xylene (120 to 150)	6.0	0.868	24.0

AROMATICS RECOVERABLE FROM 1,000 CU. FT. OF GAS

	Liters	Gallons
Benzene	0.267	0.0707
Toluene	0.242	0.0640
Xylene	0.062	0.0163

In view of the fact that the annual production of carburetted water gas is in the neighborhood of 150 billion cubic feet the above figures assume an added significance.

Deposition of silver films on glass: ALEXANDER SILVER and RAYMOND M. HOWE. A paper dealing with the study of various reactions involved in depositing silver films on glass from ammoniacal silver solutions by the use of aldehydes in the presence of alcohols and sugars. By modifying the old Liebig method it is found possible to produce perfect silver films on glass through the introduction of alcohols and sugars, the mirrors forming in the cold. The rate of deposition is controllable. The cost of mirror production is lowered considerably and the efficiency of the process as developed is higher than that of any of the older methods in use.

Some notes on chars and other solid decolorizing agents: CHARLES E. WOOD. The decolorizing effects on sugar solutions of bone char, animal and vegetable chars and several other kinds of carbon, including lamp black and aquadag are compared with one another and with fuller's earth and clay. A brief statement as to optimum conditions of manufacture and use is given and a few theoretical considerations are brought together.

Comparative tests of porcelain laboratory ware: C. E. WATERS. Five kinds, which were all that could be obtained, were tested: two American, two German and one Japanese. One German and the two American wares did not stand up well when heated to 225° C. and quickly cooled by floating on water at room temperature, or when suddenly heated in the flame of a Fletcher burner. There was not only actual breakage, but in many cases the glaze cracked under the tongs when a hot piece was picked up. The solubilities in hot solutions of sodium hydroxide and carbonate, in nearly boiling concentrated sulphuric acid, in fused sodium nitrate and in a fused mixture of this salt and the carbonate, were comparatively slight. In this respect there is little choice between the five brands. Ferric oxide, when ignited in a thin layer over the bottom of the dish, stained the glaze, but was readily removed by digestion with hydrochloric acid. The loss in weight under this treatment was so small that there could have been little or no formation of an easily soluble silicate.

Comparative tests of chemical glassware: PERCY H. WALKER and F. W. SMITHER. Composition, coefficient of expansion, refractive indices, condition of strain, effect of heat and mechanical shock and resistance to various chemical reagents were determined on seven kinds of glassware, which bear permanent manufacturers' trade-marks, and which are offered for sale on the American market. Two of these kinds of glass were of foreign manufacture. The tests, which were intended to furnish information as to the relative values of the different makes of glass for laboratory operations, show that the five kinds of American-made ware are distinctly superior to one of the foreign brands and at least equal to the other foreign brand.